



Integrated mineral technologies for more sustainable raw material supply.

D 6.6 Report on publications. Updated.

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E. Vilanova¹ and J. Guimerà¹,

¹ **Amphos 21 Consulting S.L.**



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D6.6: Report on publications

SUMMARY

This document is a deliverable of WP6 Exploitation, dissemination and communication. As a compulsory report, aims at defining the final list of publications resulting from the extensive experimental, prototyping and dissemination activities of the project partners. It consists of a list of publications with links to those papers already published in OpenAccess mode and indicated whether they are submitted otherwise.

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1. INTRODUCTION AND OBJECTIVES

The present document describes the list of publications attained to date. It was expected to be a final documented and, as a consequence of the COVID-19 outbreak, the project has been extended for six months. Therefore, there will be an updated version of this report by the end of November 2020, when the project is due to finalise.

The present document includes a first part where general principles of science communication are described. The second part of the document details the action plan to implement the strategic project communication.

2. BACKGROUND INFORMATION

2.1 Communicating science

The EU H2020 guidance on Communication indicates that “Communication, dissemination and exploitation –a team working on an H2020 project is called upon to take part in various activities that needs to bring their research to the attention of as many relevant people as possible.

Dissemination and Communication of results as contractual obligation of participation in research initiatives supported under the European Framework Programs for Research is more than just an additional reporting burden in ITERAMS

Canvas (2015) analysed the new challenges in communication under the H2020 program. The Directorate-General for Research and Innovation of the European Union revealed that scientific studies and their outcomes, carried out until 2000, had not been adequately shared within the society. In this context, the search for project applications, reviewing efficient communication strategies between European citizens and science was initiated by the European Union’s Science and Society action plan in 2001. In the FP7 program (which began in 2007) new actions plans were promoted including new calls to enhance Society and Science dialogues. Since 2010, a new concept has been developed, addressing factors playing an actual role in social changes and contributing to the scientific improvement process. This is an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, and implies that societal actors, such as researchers, citizens, policy makers, business, third sector organizations, ...are included in the research communication channels.

Current dissemination research and practice target societal sectors (groups of organizations operating in the same topical area, such as rural health clinics, elementary schools, or European geologists) rather than just the proximate community or a general public. Dissemination efforts have become more decentralized yet also more multifaceted, including repetitive messages delivered through a suite of mediums. Finally, there has been recognition that complex organizations are often making decisions about adoption and uptake of innovations, not only individuals

Science communication implies a change in a typical communication practices. Generally, scientists use to communicate research findings emphasizing on background information, methods and concepts, in the way of how science is progressing. However raising interest of the public is even higher when the focus of science communication is on the results, in a bottom-line approach.

Figure 1 illustrates the difference between peer-to-peer communications within science realms, versus outreach to the general public. Somerville and Hassol (2011) provide the picture below that compare these two ways of communicating. It highlights the need to turn our language inside out, so we can get our messages across better.

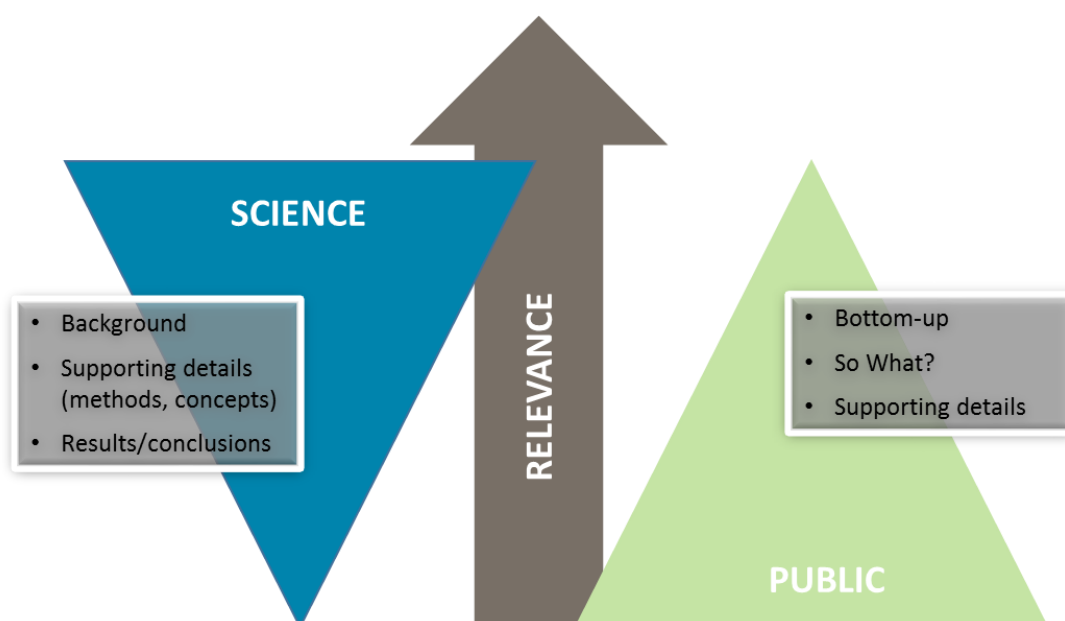


Figure 2-1 Difference between Science and General Public Outreach realms (adaptation of Somerville and Hassol, 2011)

2.2 List of publications

There is a number of publications to date that reflects the continuous progress of WPs and relevance of the scientific and technological contribution of the project partners. Here is an updated list of the peer-reviewed congresses papers, submitted papers to int. Journals and accepted papers at the writing of this report.

1. Auranen, I. J. Raatikainen (2020) ON-LINE SENSORS IN PRE-CONCENTRATION – 25 YEARS OF EXPERIENCE. AUSsim: 2020 Preconcentration Digital Conference Aus: Preconcentration and ore processing by on-line sensors.
2. Can, I.B, Bıçak, Ö., Özçelik, S., Can, N.M., Ekmekçi, Z. (2020) Sulphate Removal from Flotation Process Water using Ion Exchange Resin Column System. Minerals, 23, 10 (8), 655, <https://doi.org/10.3390/min10080655>
3. Blanc, P., A. Lach, A. Lassin, M. Falah, R. Obenaus-Emler, S. Guignot, Modeling hydration of mine tailings: Production of hydraulic binders from alkali-activated materials, Cem. Concr. Res. 137 (2020) 106216. doi:10.1016/j.cemconres.2020.106216.

[HTTPS://WWW.SCIENCEDIRECT.COM/SCIENCE/ARTICLE/PII/S0008884620303215#EC0005](https://www.sciencedirect.com/science/article/pii/S0008884620303215#EC0005)

4. Bomberg, M., Hanna Miettinen , Benjamin Musuku , Päivi Kinnunen (2020) First insights to the microbial communities in the plant process water of the multi-metal Kevitsa mine. Research in Microbiology <https://doi.org/10.1016/j.resmic.2020.07.001>
5. Bomberg, M., Hanna Miettinen (2020) Data on the optimization of an archaea-specific probe-based qPCR assay. Data in Brief. Accepted.

6. Bomberg M., Miettinen H., Musuku B., Kinnunen P. 2019. First insight to the microbial communities in the plant process water of the multi-metal Kevitsa mine. Proceedings of International Biohydrometallurgy Symposium 2019. Fukuoka, Japan.
7. Di Noi, C., A. Ciroth (2018) The Importance of a Three-dimension Approach in LCA. A Screening Study on Mining addressing Environmental, Social and Cost Aspects LCA XVIII Conference (ACLCA) Fort Collins, Colorado, September 25th-27th 2018.
8. Di Noi, C., A. Ciroth, M. Räikkönen, S. Horn, R. Molarius (2019) The experience of two European projects on how to combine social, environmental, and economic values in mining. SETAC EUROPE 29th ANNUAL MEETING 26-30 May 2019 | Helsinki, Finland
9. Di Noi, C., Franziska Eisfeldt , Andreas Ciroth (2018) Sustainable mining: how to quantify social issues in the mining industry and metals supply chain. 70th LCA Discussion Forum , ETH Zürich Social LCA – Challenges and solutions in application and implementation. November 22, 2018
10. Falah, M; Obenaus-Emler, R; Ohenoja K; Kinnunen, P; Illikainen, M; New Composites of Alkali Activated Mine Tailings using Sub-Micron Mine Tailings, 2020, Constriction and Building Materials <https://www.sciencedirect.com/science/article/pii/S0950061820306644>
11. Falah, M; Obenaus-Emler, R; Kinnunen, P; Illikainen, M; Alkali Activating of Low-Alumina Mine Tailings for more Sustainable Raw Material Supply, 2020, International Journal of Mining and Mineral Engineering, 2019 <https://www.inderscienceonline.com/doi/pdf/10.1504/IJMME.2019.104450>.
12. Falah M, Obenaus-Emler R, Kinnunen P, Illikainen M. Effects of Activator Properties and Curing Conditions on Alkali-Activation of Low-Alumina Mine Tailings. Waste and Biomass Valorization, 2019. <https://doi.org/10.1007/s12649-019-00781-z>.
13. Falaha, M., Robert Obenaus-Emlerb, Paivo Kinnunena, Mirja Illikainen (2019) Alkali activation of low-alumina mine tailings for more sustainable raw material supply. Proceedings of the 14th International Symposium of Continuous Surface Mining, ISCSM2018
14. Gafiullina, A., Vehmaanperä, P., Kinarinnen, T., Häkkinen, A. (2020). Pressure filtration properties of sludge generated in the electrochemical treatment of mining waters. Water Research, 115992, available on-line. <https://doi.org/10.1016/j.watres.2020.115922>
15. Huttunen-Saarivirta E, Karhu M, Kinnunen P, Pinomaa T and Kivikytö-Reponen P. 2020. Redesign mineral and metal loops. Materia 2/2020: 26-29. (in Finnish)
16. İlkey Bengü Can, Özlem Bıçak, Seda Özçelik, Metin Can, Zafir Ekmekçi (2020) USE OF ION EXCHANGE RESIN FOR PROCESS WATER TREATMENT. SME Annual Conference & Expo 2020. Phoenix, Arizona, 23-26th February. <https://www.smeannualconference.com/>
17. Kinnunen, P., J. Raatikainen, R. Emler, S. Guignot, A. Ciroth, J. Guimerà, M. Paajanen, K. Heiskanen (2018) TOWARDS CLOSED WATER LOOPS, ADVANCED SORTING AND TAILINGS VALORIZATION FOR MORE SUSTAINABLE RAW MATERIAL SUPPLY. Sustainable Minerals conference, Namibia 2018.
18. Kinnunen, P. R. Obenaus-Emler, J. Raatikainen, S. Guignot, J. Guimerà, A. Ciroth, K. Heiskanen (2020) Review of closed water loops with ore sorting and tailings valorisation for a more sustainable mining industry. Journal of Cleaner Production 278 (2021) 123237. <https://doi.org/10.1016/j.jclepro.2020.123237>

19. KINNUNEN, P., MIETTINEN, H. AND BOMBERG, M., 2020. REVIEW OF POTENTIAL MICROBIAL EFFECTS ON FLOTATION. MINERALS, 10(6), P.533. [HTTPS://DOI.ORG/10.3390/MIN10060533](https://doi.org/10.3390/min10060533)
20. Kinnunen P. and Miettinen V. Akkumetallit talteen kestävästi. 2020. Submitted to Materia (in Finnish).
21. Lassin, A.; D. Thiéry, P. Blanc and S. Guignot Estimating potential emissions from mine tailings: insights from reactive transport modelling. Submitted to Applied Geochemistry (Nov 2020).
22. Le, T.M.K., Mikko Mäkelä, Nóra Schreithofer, Olli Dahl, A multivariate approach for evaluation and monitoring of water quality in mining and minerals processing industry, Minerals Engineering, Volume 157, 2020, 106582, ISSN 0892-6875, <https://doi.org/10.1016/j.mineng.2020.106582>.
23. Le, T.M.K., M. Mäkelä, N. Schreithofer, O. Dahl Dissolution Test Protocol for Estimating Water Quality Changes in Minerals Processing Plants Operating With Closed Water Circulation Minerals 2020, 10(8), 653; <https://doi.org/10.3390/min10080653>
24. Le, T.M.K., Miettinen, H.; Bomberg, M.; Schreithofer, N.; Dahl, O. Challenges in the Assessment of Mining Process Water Quality. Minerals 2020, 10(11), 940; <https://doi.org/10.3390/min10110940>.
25. Mamelkina, M. (2020), Treatment of mining waters by electrocoagulation. PhD in Chemical and Process Engineering. LUT School of Engineering Science. LUT UNIVERSITY
26. Mamelkina, M.A, ITERAMS project “Waste Valorisation and Water Treatment?”, MineExchange 2019, Aberystwyth University, 28th – 29th November 2019, Wales
27. Mamelkina, M.A., Vasilyev, F., Tuunila, R., Sillanpää, M., Häkkinen, A. (2019). Investigation of the parameters affecting the treatment of mining waters by electrocoagulation. Journal of Water Process Engineering. 32, 100929. <https://doi.org/10.1016/j.jwpe.2019.100929>
28. Mamelkina, M.A., Vehmaanperä, P., Tuunila, R., Sillanpää, M., Häkkinen, A. (2019). Electrochemical treatment of mining waters. International Mine Water Association Conference 2019, July 15-19, Perm, Russia. Conference article. In: Wolkersdorfer, C., Khayrulina, E., Polyakova, S., Bogush, A., ed., Proceedings of a Conference – open access. pp. 212-216, https://www.imwa.info/docs/imwa_2019/IMWA2019_Mamelkina_212.pdf
29. Mamelkina, M.A., Tuunila, R., Häkkinen, A. (2020). Scale-up of Electrochemical Units for Mining Waters Treatment. International Mine Water Association Congress 2020, New Zealand. Conference article. In: Pope, J., Wolkersdorfer, C., Sartz, L., Weber, A., Wolkersdorfer, K., ed., Proceedings of a Conference –open access. pp. 163-168, https://www.imwa.info/docs/imwa_2020/IMWA_2020_proceedings.pdf
30. Mhonde, N. P., N. Schreithofer, K. C. Corin, M. Mäkelä (2019) Assessing the combined effect of water temperature and complex water matrices on xanthate adsorption on chalcopyrite and pentlandite. Flotation 19 conference.
31. Mhonde, N. P., M. Smart, K. Corin, N. Schreithofer Investigating the Electrochemical Interaction of a Thiol Collector with Chalcopyrite and Galena in the Presence of a Mixed Microbial Community. Minerals 2020, 10(6), 553; <https://doi.org/10.3390/min10060553>
32. Mhonde, N. P., N. Schreithofer, K. C. Corin, M. Mäkelä Assessing the Combined Effect of Water Temperature and Complex Water Matrices on Xanthate Adsorption Using Multiple Linear Regression. Minerals, 2020, 10(9), 733; <https://doi.org/10.3390/min10090733>

33. Miettinen, H., Bomberg, M., Le, T. M. K., Kinnunen, P., 2020. Identification and metabolism of naturally prevailing microorganisms in zinc and copper minerals processing. Minerals, ready to be submitted in December 2020 (in approval at Somincor).
34. Obenaus-Emler, R., M. Falah, M. Illikainen (2019) Assessment of mine tailings as precursors for alkali-activated materials for on-site applications. ICSBM 2019 2nd International Conference of Sustainable Building Materials 12-15 August, Eindhoven The Netherlands.
35. Obenaus-Emler, R, Falah, M, Illikainen, M, 2020, Assessment of mine tailings as precursors for alkali-activated materials for on-site applications. 2020, Paper selected for special issue in Construction and Building Materials.
<https://www.sciencedirect.com/science/article/pii/S095006182030475X>.
36. October, L.L. K.C. Corin, M.S. Manono, N. Schreithofer and J.G. Wiese (2019) Fundamental and Flotation Techniques Assessing the Effect of Water Quality on Bubble-Particle Attachment of Chalcopyrite and Galena. MEI Flotation 19 conference.
37. October, L.L., K.C. Corin, M.S. Manono, N. Schreithofer, J.G. Wiese, A fundamental study considering specific ion effects on the attachment of sulfide minerals to air bubbles, Minerals Engineering, Volume 151, 2020, 106313, ISSN 0892-6875,
<https://doi.org/10.1016/j.mineng.2020.106313>.
38. Öztürk, Y. and Zafir Ekmekçi, "Removal of sulfate ions from process water by ion exchange resins", Minerals Engineering, Vol 159, December 2020. 106613
39. Raatikainen, J., R. Emler, S. Guignot, K. Heiskanen, A. Ciroth, J. Guimerà, M. Paajanen, Päivi Kinnunen (2018) Integrated mineral technologies for more sustainable raw material supply (ITERAMS) Watercongress Santiago de Chile, 9-11 May.
40. Raatikainen, J., R. Emler, S. Guignot, K. Heiskanen, A. Ciroth, J. Guimerà, M. Paajanen, Päivi Kinnunen (2018) Integrated mineral technologies for more sustainable raw material supply (ITERAMS) EU-LA Mining & Exploration Convention and Trade Show, Madrid, April 2018.
41. Raatikainen, J., N. Pérez (2020) Ore sorting automation for copper mining with advanced XRF technology: From theory to case study. Automining 2020 Chile - virtual event in November-December 2020
42. Saari, E., K. Jansson, B. Musuku (2020) The effect of plant process water quality on the flotation of sulphide ore. Submitted to IMPC 2020 conference.
43. Sánchez-Ortega, C., (2019) SOLIDS AND SULFATE IONS REMOVAL FROM MINE WATER BY DISSOLVED AIR FLOTATION. Master's Degree in Chemical and Process Engineering. 87 Pages, 22 Tables and 26 Figures. LUT School of Engineering Science. LUT UNIVERSITY

3. REFERENCES

Somerville RCJ & Hassol SJ ,2011. Communicating the science of climate change. Physics Today 64(10), p. 48. <http://dx.doi.org/10.1063/PT.3.1296>.